**INTERNAL ASSIGNMENT**

**Course Code: OMC-307 July 23 Last Date of Submission: 31/12/24**

**Course Title: Design and Analysis of Algorithms Lab Maximum Marks: 30**

**Session: July 2024**

* Please submit answers to all programs.
* Programs should be handwritten.
* Include output snapshots generated from the computer-executed program.
* Ensure that you provide at least three sets of outputs for three different inputs.

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|  | Write a C Program using recursive function to find the GCD of two numbers. |
|  | Write a C program using recursive function to implement towers of Hanoi problem. |
|  | Sort a given set of numbers using the merge sort method and determine the time required to sort them. |
|  | Sort a given set of numbers using the quick sort method and determine the time required to sort the them. |
|  | Given a set of jobs, with and as deadline and profit for job , write a program to find an optimal sequence of jobs, i.e., find the sequence of jobs that can be completed by their deadline and giving a maximum profit. Estimate the time complexity of the algorithm. |
|  | Write C programs to find the minimum cost spanning tree using Kruskal’s method. |
| viii | Write a C program to implement the Dijkstra’s Algorithm to find the shortest paths from a given source vertex to all other vertices. |
| ix. | Write C program to find all pairs of shortest paths using Floyd’s algorithm. |
| x. | Write C program to implement 0/1 knapsack problem using dynamic programming. |
| xi | Write a C program to perform the following operations on a graph.   * Depth First Search * Breadth First Search |
| xii | Write a C program to find a subset of a set such that the sum of the elements of the subset is equal to a given integer . |
| xiii | Write a C program to implement problem using backtracking. |